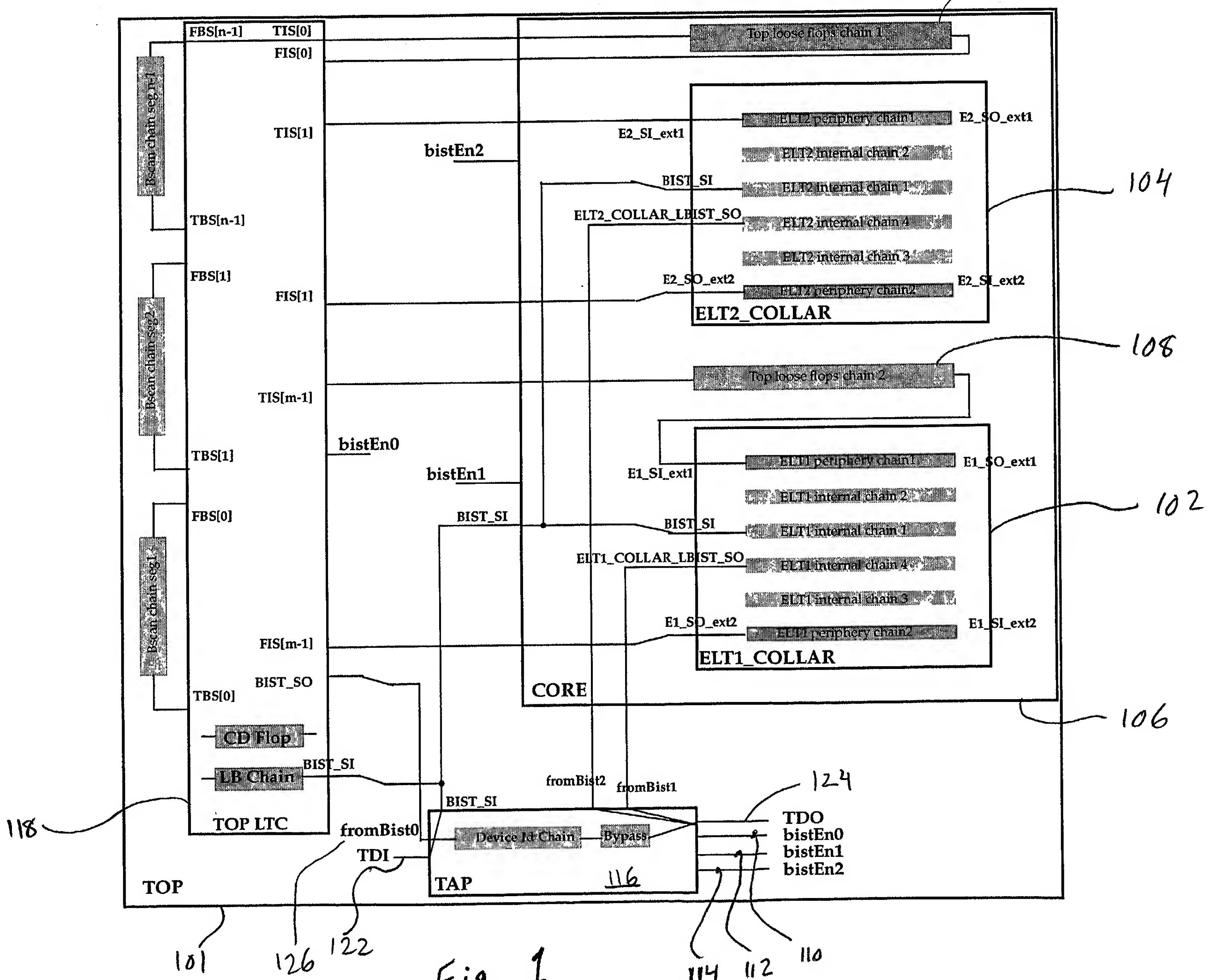


106
Top loose flops chain 1
FBS[n-1]
TIS[0]
FIS[0]
Bscan chain seg n-1
TIS[1]
E2_SI_ext1
ELT2 periphery chain1
E2_SO_ext1
bistEn2
ELT2 internal chain 2
BIST_SI
ELT2 internal chain 1
104
ELT2_COLLAR_LBIST_SO
ELT2 internal chain 4
TBS[n-1]
ELT2 internal chain 3
FBS[1]
E2_SO_ext2
E2_SI_ext2
FIS[1]
ELT2 periphery chain2
Bscan chain seg2
ELT2_COLLAR
108
Top loose flops chain 2
TIS[m-1]
bistEn0
TBS[1]
bistEn1
E1_SI_ext1
ELT1 periphery chain1
E1_SO_ext1
ELT1 internal chain 2
102
FBS[0]
BIST_SI
BIST_SI
ELT1 internal chain 1
ELT1_COLLAR_LBIST_SO
ELT1 internal chain 4
Bscan chain seg1
ELT1 internal chain 3
E1_SO_ext2
E1_SI_ext2
FIS[m-1]
ELT1 periphery chain2
ELT1_COLLAR
BIST_SO
CORE
TBS[0]
106
CD Flop
LB Chain
BIST_SI
fromBist2
fromBist1
124
BIST_SI
118
TOP LTC
TDO
fromBist0
Device Id Chain
Bypass
bistEn0
TDI
bistEn1
bistEn2
TOP
TAP
116
101
126
122
114
112
110

Fig. 1

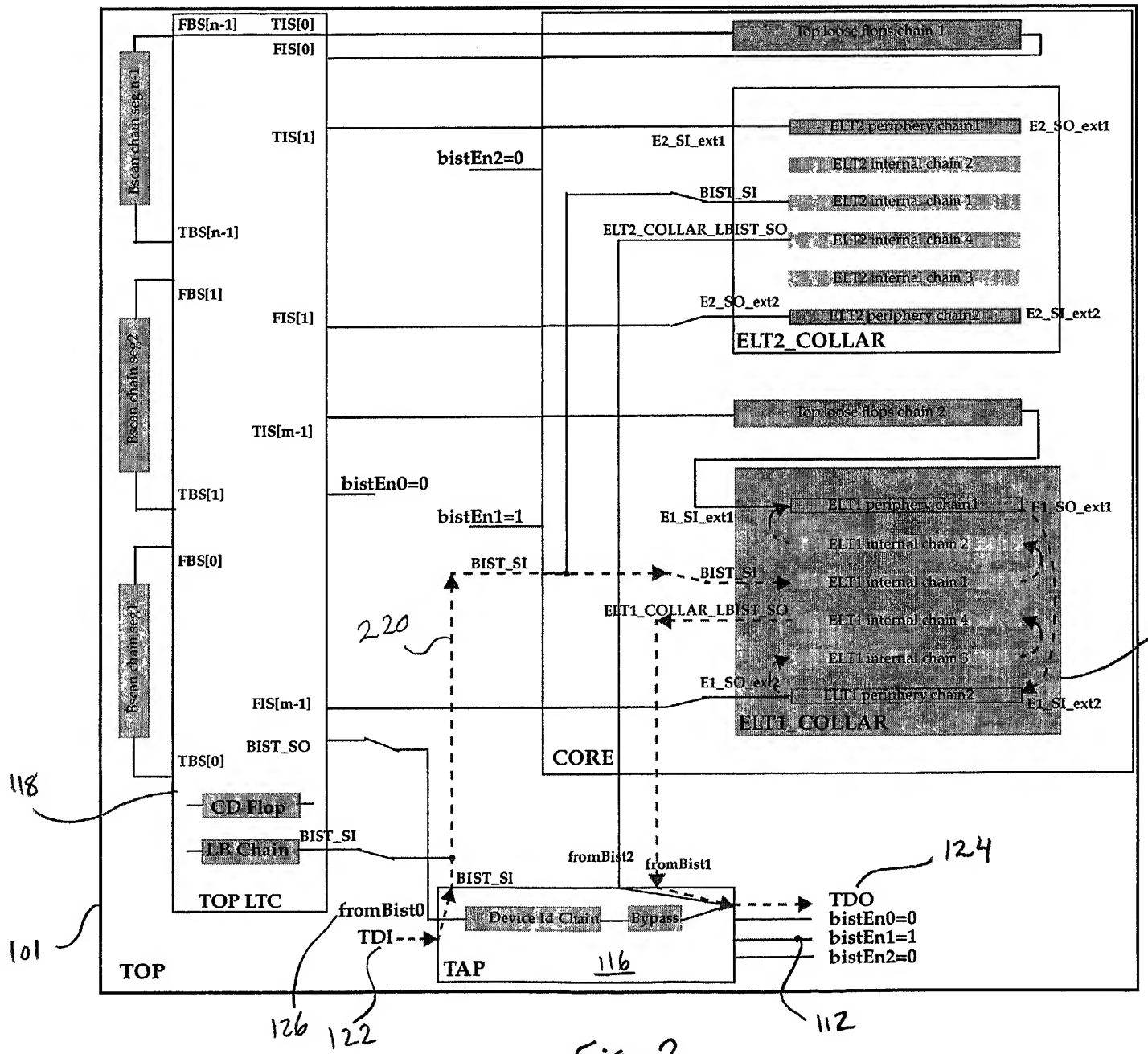
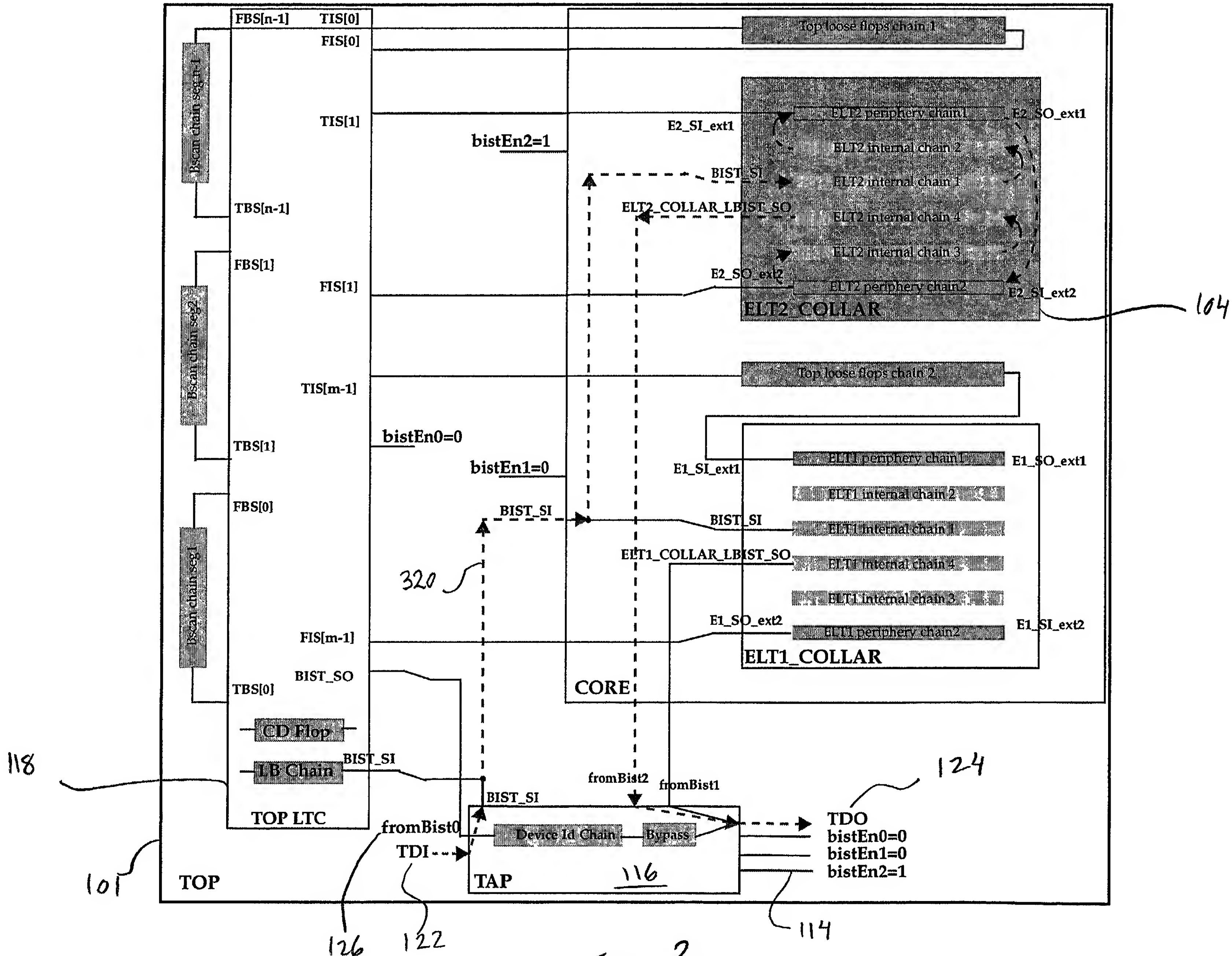

FBS[n-1]
TIS[0]
FIS[0]
Bscan chain seg n-1
TIS[1]
TBS[n-1]
FBS[1]
FIS[1]
Bscan chain seg2
TIS[m-1]
TBS[1]
FBS[0]
Bscan chain seg1
FIS[m-1]
BIST_SO
TBS[0]
CD Flop
LB Chain
BIST_SI
TOP LTC
TOP
101
118
bistEn2=0
bistEn0=0
bistEn1=1
BIST_SI
220
Top loose flops chain 1
E2_SI_ext1
ELT2 periphery chain1
E2_SO_ext1
ELT2 internal chain 2
BIST_SI
ELT2 internal chain 1
ELT2_COLLAR_LBIST_SO
ELT2 internal chain 4
ELT2 internal chain 3
E2_SO_ext2
ELT2 periphery chain2
E2_SI_ext2
ELT2_COLLAR
Top loose flops chain 2
E1_SI_ext1
ELT1 periphery chain1
E1_SO_ext1
ELT1 internal chain 2
BIST_SI
ELT1 internal chain 1
ELT1_COLLAR_LBIST_SO
ELT1 internal chain 4
ELT1 internal chain 3
E1_SO_ext2
ELT1 periphery chain2
E1_SI_ext2
ELT1_COLLAR
102
CORE
fromBist2
fromBist1
BIST_SI
124
TDO
bistEn0=0
bistEn1=1
bistEn2=0
fromBist0
TDI
Device Id Chain
Bypass
TAP
116
126
122
112

Fig. 2



TOP
TOP LTC
FBS[n-1]
TIS[0]
FIS[0]
TIS[1]
TBS[n-1]
FBS[1]
FIS[1]
TIS[m-1]
TBS[1]
FBS[0]
FIS[m-1]
BIST_SO
TBS[0]
CD Flop
LB Chain
BIST_SI
Bscan chain seg n-1
Bscan chain seg2
Bscan chain seg1
CORE
Top loose flops chain 1
Top loose flops chain 2
ELT2_COLLAR
ELT2 periphery chain1
ELT2 internal chain 2
ELT2 internal chain 1
ELT2 internal chain 4
ELT2 internal chain 3
ELT2 periphery chain2
E2_SI_ext1
E2_SO_ext1
E2_SO_ext2
E2_SI_ext2
BIST_SI
ELT2_COLLAR_LBIST_SO
ELT1_COLLAR
ELT1 periphery chain1
ELT1 internal chain 2
ELT1 internal chain 1
ELT1 internal chain 4
ELT1 internal chain 3
ELT1 periphery chain2
E1_SI_ext1
E1_SO_ext1
E1_SO_ext2
E1_SI_ext2
BIST_SI
ELT1_COLLAR_LBIST_SO
bistEn2=1
bistEn0=0
bistEn1=0
BIST_SI
320
TAP
Device Id Chain
Bypass
116
BIST_SI
fromBist0
fromBist1
fromBist2
TDI
TDO
bistEn0=0
bistEn1=0
bistEn2=1
101
104
114
118
122
124
126

Fig. 3

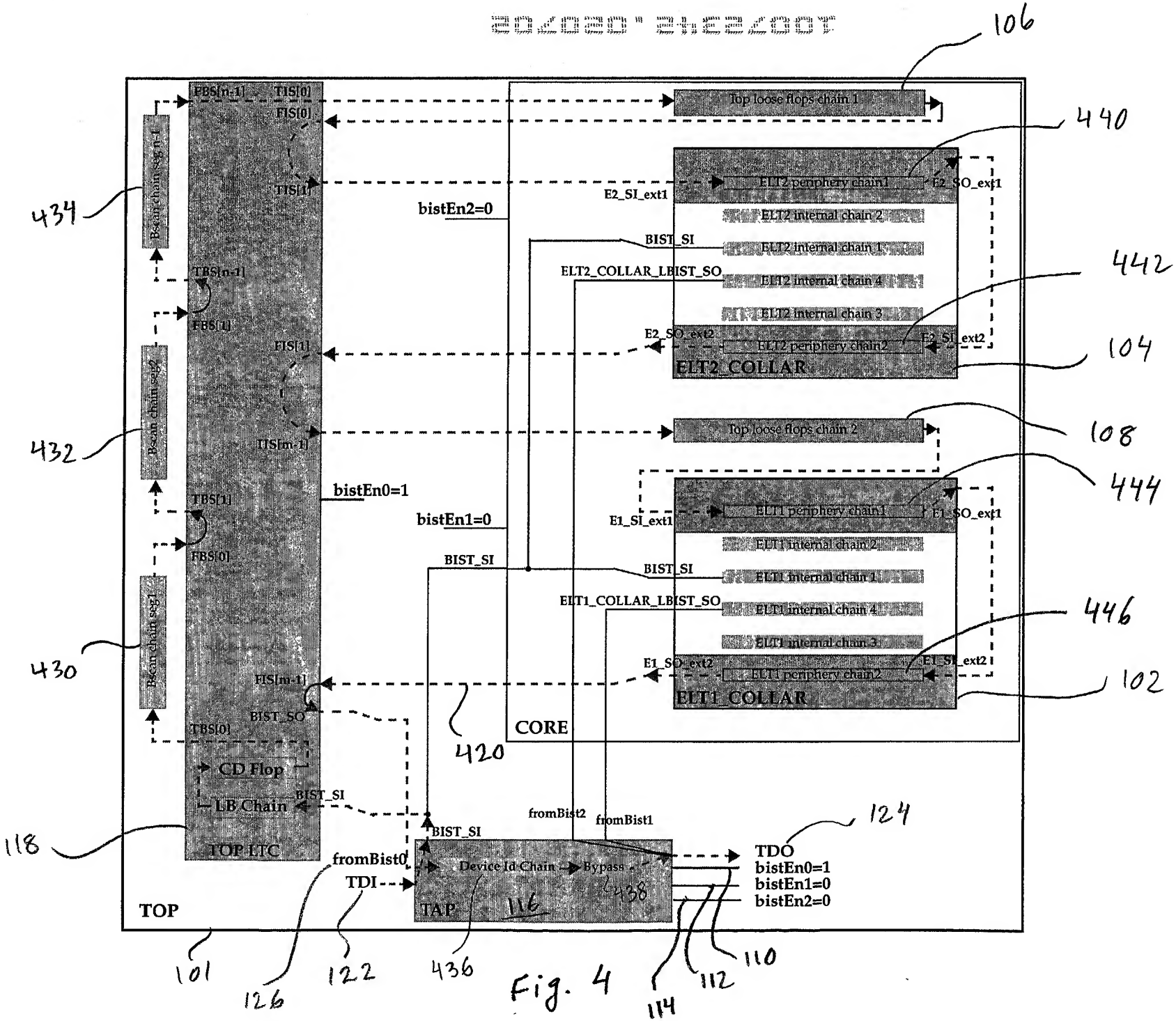
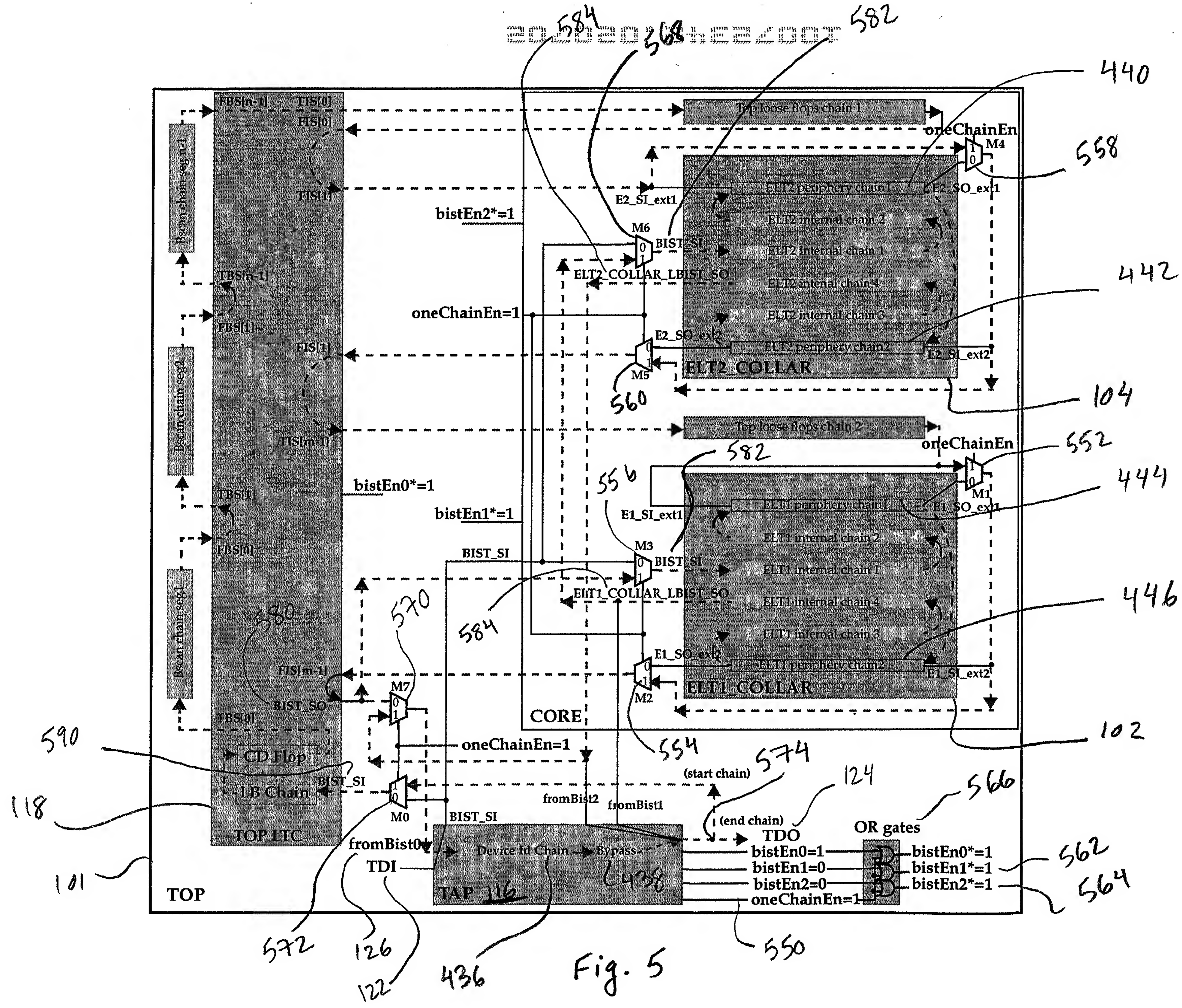

106
Top loose flops chain 1
440
ELT2 periphery chain1
E2_SO_ext1
E2_SI_ext1
ELT2 internal chain 2
ELT2 internal chain 1
ELT2 internal chain 4
ELT2 internal chain 3
E2_SO_ext2
ELT2 periphery chain2
E2_SI_ext2
ELT2_COLLAR
442
104
Top loose flops chain 2
108
444
ELT1 periphery chain1
E1_SO_ext1
E1_SI_ext1
ELT1 internal chain 2
ELT1 internal chain 1
ELT1 internal chain 4
ELT1 internal chain 3
E1_SO_ext2
ELT1 periphery chain2
E1_SI_ext2
ELT1_COLLAR
446
102
CORE
420
Bscan chain seg n-1
Bscan chain seg 1
Bscan chain seg 0
434
432
430
FBS[n-1]
TBS[n-1]
FBS[1]
TBS[1]
FBS[0]
TBS[0]
TIS[0]
FIS[0]
TIS[1]
FIS[1]
TIS[n-1]
FIS[n-1]
BIST_SO
CD Flop
LB Chain
TOP LTC
118
bistEn2=0
bistEn0=1
bistEn1=0
BIST_SI
ELT2_COLLAR_LBIST_SO
ELT1_COLLAR_LBIST_SO
fromBist2
fromBist1
fromBist0
TDI
Device Id Chain
Bypass
TAP
116
438
TDO
124
bistEn0=1
bistEn1=0
bistEn2=0
TOP
101
126
122
436
114
112
110

Fig. 4



Top loose flops chain 1
oneChainEn
M4
E2_SO_ext1
ELT2 periphery chain1
ELT2 internal chain 2
ELT2 internal chain 1
ELT2 internal chain 4
ELT2 internal chain 3
ELT2 periphery chain2
E2_SI_ext2
ELT2_COLLAR
E2_SI_ext1
M6
BIST_SI
ELT2_COLLAR_LBIST_SO
E2_SO_ext2
M5
Top loose flops chain 2
oneChainEn
M1
E1_SO_ext1
ELT1 periphery chain1
ELT1 internal chain 2
ELT1 internal chain 1
ELT1 internal chain 4
ELT1 internal chain 3
ELT1 periphery chain2
E1_SI_ext2
ELT1_COLLAR
E1_SI_ext1
M3
BIST_SI
ELT1_COLLAR_LBIST_SO
E1_SO_ext2
M2
CORE
bistEn2*=1
oneChainEn=1
bistEn0*=1
bistEn1*=1
BIST_SI
FBS[n-1]
TIS[0]
FIS[0]
TIS[1]
TBS[n-1]
FBS[1]
FIS[1]
TIS[m-1]
TBS[1]
FBS[0]
FIS[m-1]
BIST_SO
TBS[0]
CD Flop
LB Chain
TOP LTC
Bscan chain seg n-1
Bscan chain seg2
Bscan chain seg1
M7
oneChainEn=1
BIST_SI
M0
fromBist0
TDI
BIST_SI
fromBist2
fromBist1
(start chain)
(end chain)
TDO
Device Id Chain
Bypass
TAP 116
bistEn0=1
bistEn1=0
bistEn2=0
oneChainEn=1
OR gates
bistEn0*=1
bistEn1*=1
bistEn2*=1
TOP
440
558
442
104
552
444
446
102
582
584
568
560
556
554
570
580
590
118
101
572
126
122
436
438
550
574
124
566
562
564

Fig. 5